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TITLE: METHOD FOR CONTROLLING VAPOR-DEPOSITED FILM
THICKNESS
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ABSTRACT:

PURPOSE: To control the thickness of a vapor-deposited film on a lens surface to a desired value with precision by irradiating a film thickness monitoring substrate with the light of specified wavelength, fetching the reflectance or transmittance as the numerical data, and using the time when the minimum or maximum value of the obtained quadratic curve is obtained at the time of forming the vapor-deposited film of a specified material on the lens surface.

CONSTITUTION: Plural lenses 2 on which an MgF2 vapor-deposited film is to be formed are fixed on the side face of an umbrella-type supporting table 3, and a substrate 4 for monitoring the thickness of the MgF2 vapor-deposited film is fixed on the upper face. The vapor of MgF2 is generated from an MgF2 vaporizing source 5, and the MgF2 vapor-deposited film F is formed on the inner faces of the lens 2 and monitoring substrate 4. In this case, the substrate 4 is irradiated by the light L0 from a W lamp 7 through a rotary chopper 8 as the pulse light L1. The interference light Lr due to the optical path difference between the reflected light from the surface of the substrate 4 and the reflected light from the MgF2 film is converted to monochromatic light by a filter 11. The monochromatic light is amplified, A/D converted, and then inputted to a microcomputer 15 to

obtain a quadratic curve wherein the intensity alternates between the maximum and minimum. The thickness of the MgF2 film based on the reflectance is calculated from the curve, and the time when a desired thickness is obtained is accurately predicted.

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